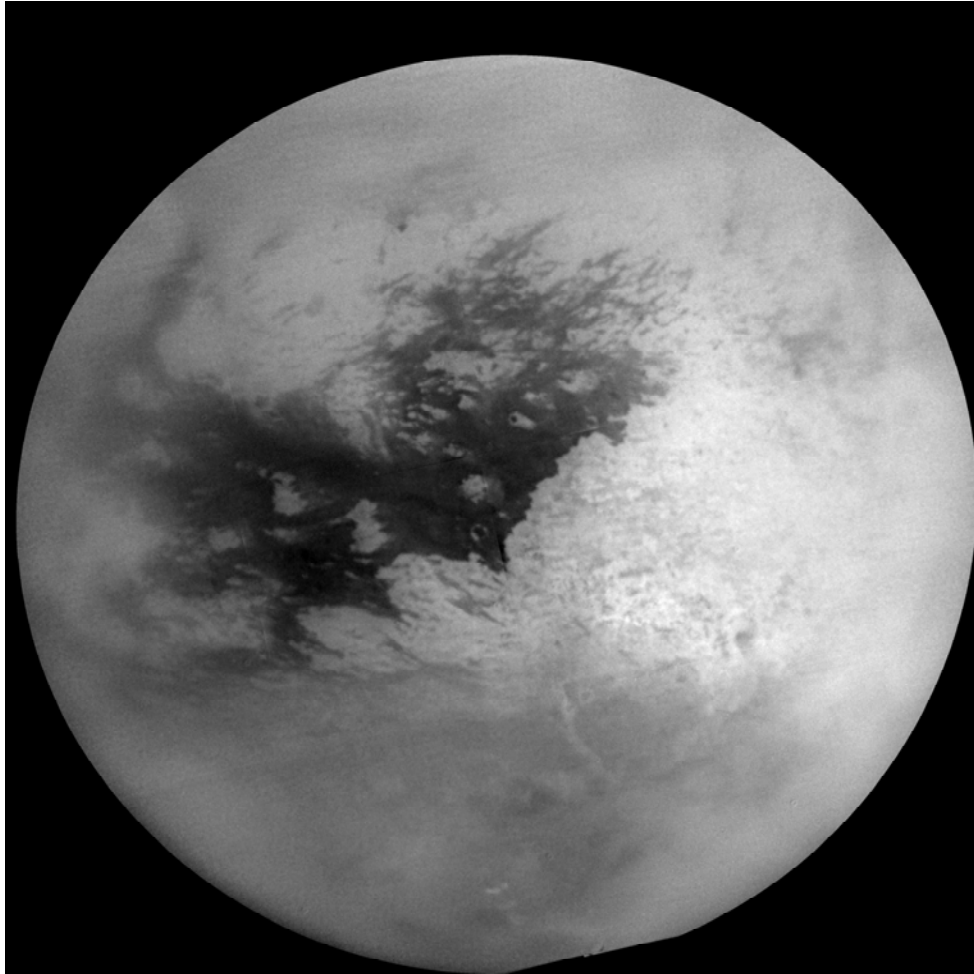


C A S S I N I



TITAN-014TI(T7) MISSION DESCRIPTION

August 2005

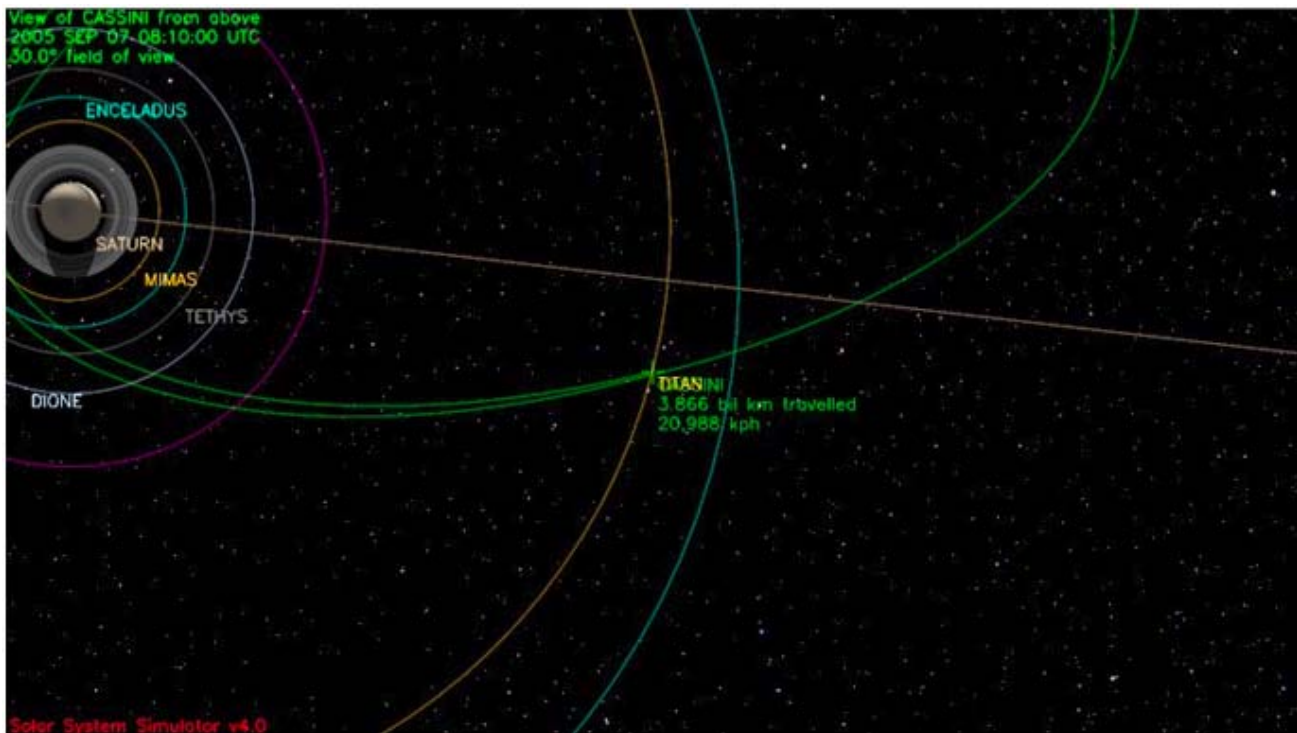
Jet Propulsion Laboratory
California Institute of Technology

PD 699-100, Rev O (supplement)
JPL D-5564, Rev O (supplement)

1.1 OVERVIEW

Titan-7 is the eighth targeted encounter of Saturn's largest moon. The flyby occurs on Wednesday September 7 at 08:12 SCET (02:34 AM Pacific Standard Time). The closest approach will be at an altitude of 1075 km (668 miles) above the surface at a speed of 5.9 km/sec (13,600 mph). Titan has a diameter of 5150 km (3200 miles), so the spacecraft passes just a Titan radii. The phase (angle from the Sun to Titan to Cassini) on approach is approximately 50 degrees, reaching 85 degrees at closest approach, and is approximately 128 degrees outbound. The lower phase angles are good for the Cassini cameras.

The encounter is set up with two approach maneuvers: an apoapsis maneuver (OTM#30) on August 30 and another Titan targeting maneuver (OTM #31) on September 3, four days before the encounter. This Titan flyby encounter is an outbound flyby, with Saturn periapsis occurring almost two days earlier. The observations will be done using thrusters for attitude control as the flyby altitude is close enough for Titan's atmosphere to have an effect. The local time at the closest approach will be near dawn. The flyby geometry is shown below.



1.2 ABOUT TITAN

Titan is one of the primary scientific interests of the Cassini-Huygens mission. Through observations by Earth based telescopes and the Voyager spacecraft, Titan has been revealed to be an intriguing world both similar in nature to Earth and unique among both satellites and terrestrial planets. The largest of Saturn's satellites, Titan is larger than the

planets Mercury or Pluto. Titan is the only satellite in the solar system with an appreciable atmosphere. Like Earth's atmosphere, Titan's atmosphere is composed mostly of Nitrogen, yet appears to have few clouds. However, it also contains significant quantities of aerosols and organic compounds (hydrocarbons), including methane and ethane. Although Titan's thick smoggy atmosphere masks its surface, scientists have speculated Titan's surface could contain solid, liquid and muddy material creating features such as lakes, seas, or rivers. Additionally liquid reservoirs may exist beneath the surface forming geysers or volcanoes that feed flowing liquid onto the surface.

Titan's peak surface temperature is about 95 Kelvins, too cold for liquid water, and due to its thick atmosphere, the pressure at the surface is 1.6 times greater than Earth's atmosphere. At this temperature and pressure, chemicals such as methane, ethane, propane, ammonia, water-ice and acetylene may be involved in complex interior-surface-atmosphere chemical cycles resulting in eruptions, condensation and precipitation (or rain). Initial observations obtained by Cassini during the first three passes of Titan provided our first close up views of Titan in wavelengths ranging from visible light to infrared to radar. The Huygens probe successfully returned atmospheric data and images of the surface, providing ground truth for the Cassini Orbiter measurements. The results show a mysterious world even more complex than previously thought. The diversity of surface composition and its connection to Titan's geologic features remains a fundamental question. Huygens results indicate the methane exists as a liquid just below the surface and may rain from the atmosphere periodically. Clouds in Titan's atmosphere were observed in the southern hemisphere, yet no clear explanation has emerged on what the clouds are composed of, or why more clouds do not exist. Observations of Titan's interaction with Saturn's magnetosphere indicates the presence of complex processes complicated by Titan's occasional emergence out of Saturn's magnetosphere into the solar wind.

1.3 TITAN-7 SCIENCE ACTIVITIES

There will be 3577 Mbits of which the first half will be received on Earth between Wednesday, September 7 at 9:30 pm and 5:30 am Thursday morning and a second half will be received on Earth between Friday, September 9 at 6:00 am and noon. The science activities are summarized below:

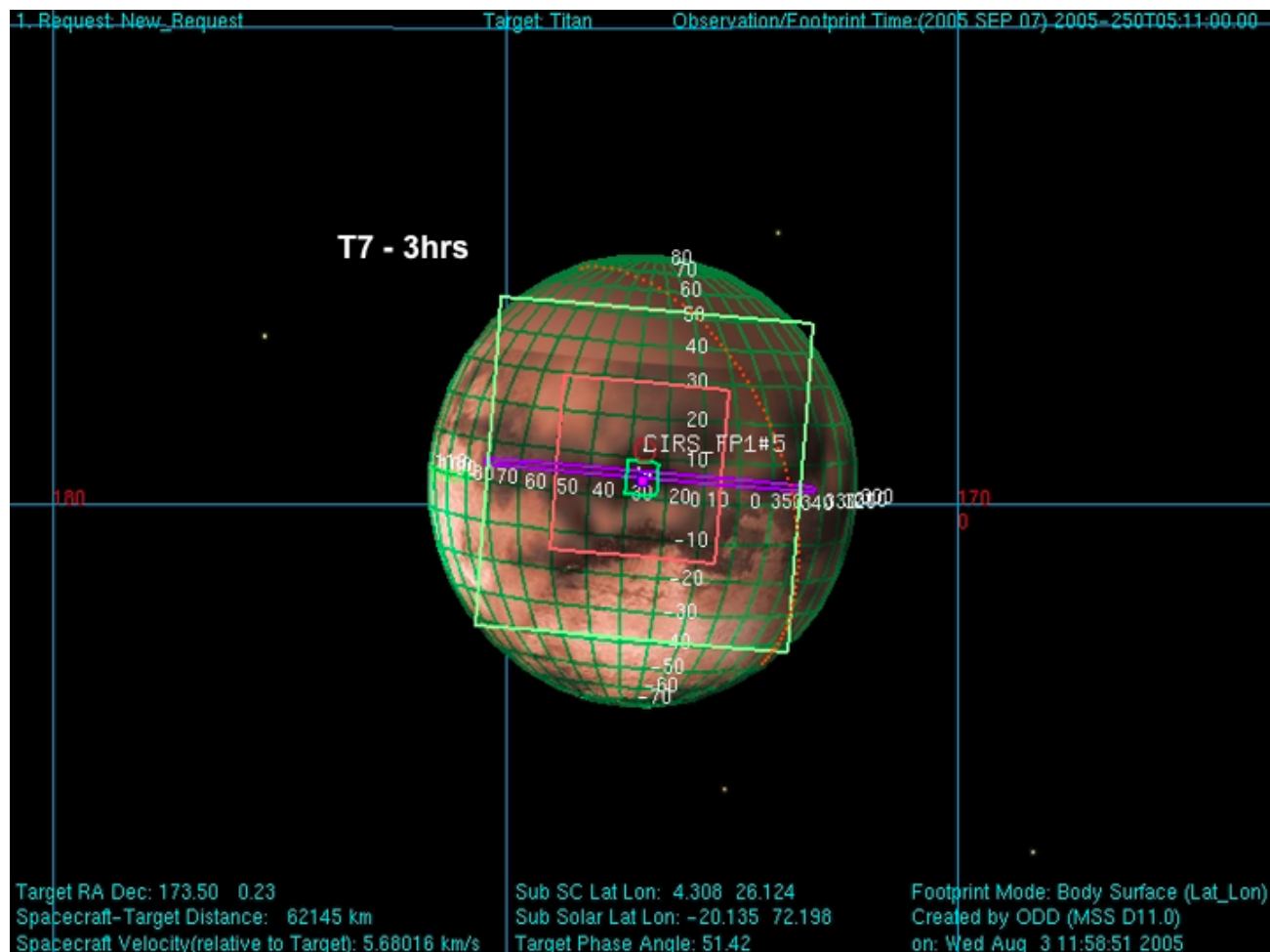
- The first RADAR SAR at high southern latitudes, where the Cassini cameras have seen some indications of lakes. This flyby will increase the SAR coverage by 50% over what we have so far. The T7 altimetry covers a very nice bright-dark-bright boundary at 235W, 20S.
- RADAR radiometry which measures the thermophysical properties of the surface, will cover northern anti-Saturn hemisphere.
- UVIS has its second stellar occultation looking for temperature of the high atmosphere and vertical profiles of N, N₂ and hydrocarbons at many latitudes. This is an occultation of the star Alpha Pegasus. Species found in the Titan-B occultation include methane, acetylene, ethylene, ethane, diacetylene, and hydrogen cyanide.

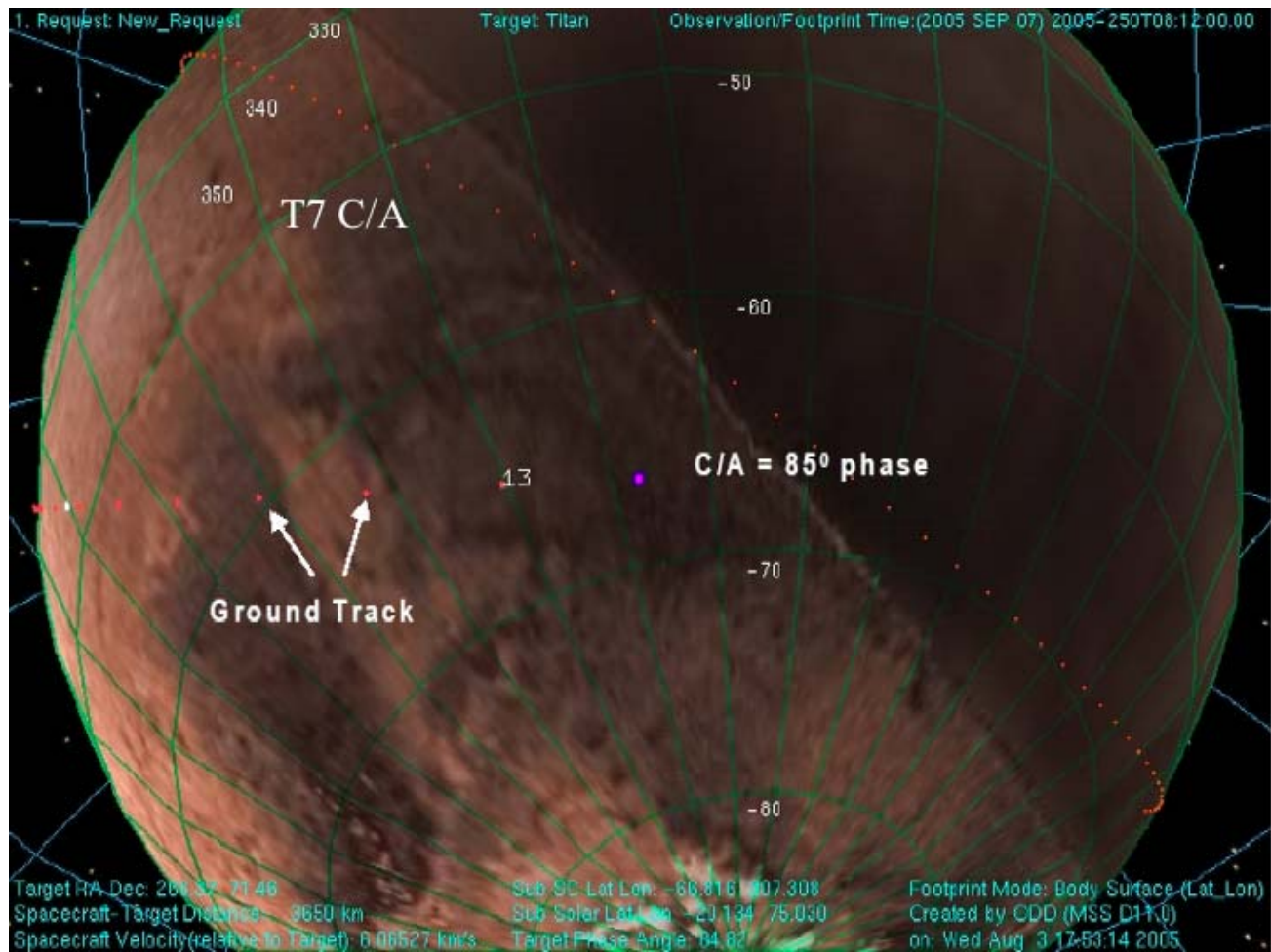
- Cassini camera will target the 80km diameter crater and fractures near the tip of the “H”, a prominent albedo feature between 0 and 90 degrees west longitude.
- Expand temporal coverage for atmospheric changes (haze, clouds) and detecting change on surface.
- Examine the seasonal variation of hydrocarbon and nitrile species.
- Continue the long-term campaign of temperature mapping, increasing spatial and temporal coverage. Vertical profiles of weak atmospheric species, vertical temperature map, and search for new species in the far-infrared. Mid & far-infrared measurements to obtain information on the thermal structure of Titan’s stratosphere.
- Further detailed studies of Titan’s interaction with Saturn’s magnetosphere.
- Measurements of Titan’s upper ionosphere and Cassini’s crossing through Titan’s plasma wake – ion and electron measurements.
- Study of the influence of the incident plasma flow on the highly dynamic outer magnetosphere.
- Examination of Titan’s exosphere with energetic neutral atom imaging.
- Characterization of the ion composition and charge state near Titan.
- Density and temperature measurements of Titan’s ionospheric electrons – as well as a search for lightning.

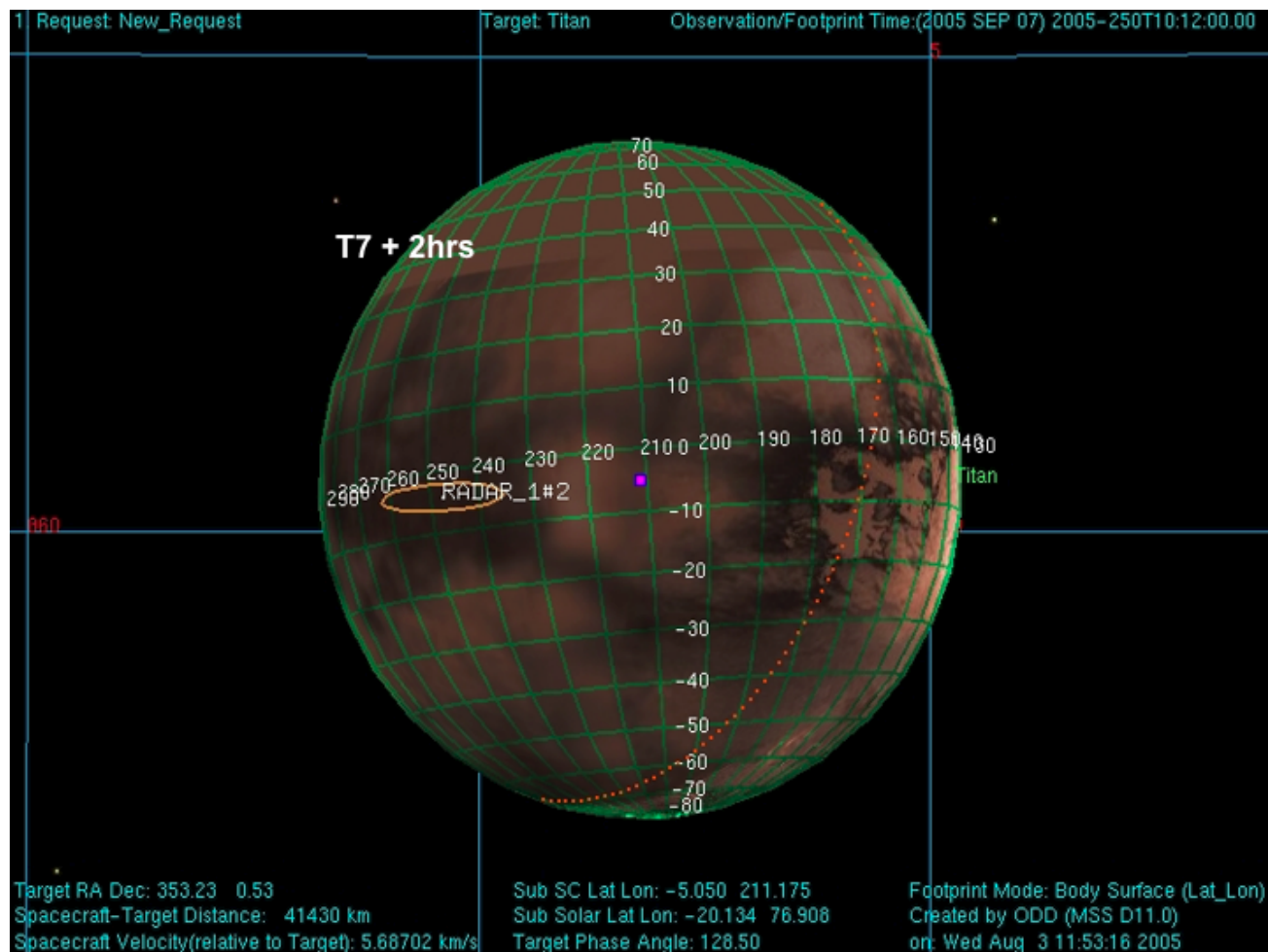
1.4 TITAN-7 SAMPLE SNAPSHOTS AND SEQUENCE OF EVENTS

1.4.1 Snapshots

Three views of Titan from Cassini before, during, and after closest approach to Titan are shown below. The views are oriented such that the direction towards the top of the page is aligned with Titan’s north pole. Sample remote sensing instrument fields of view are drawn assuming that Cassini is pointed toward the center of Titan. The size of these fields of view vary as a function of the distance between Cassini and Titan. A key for use in identifying these instruments fields of view in the figures is listed below:







Cassini Titan-7 Timeline - September 2005

Colors: yellow=maneuvers; blue=geometry; pint=T7
related science activities; green=data playbacks

Orbiter UTC (SCET)	Ground UTC	Pacific Time	Time wrt T7	Activity	Description
242T21:43:00	Aug 30 23:05	Tue Aug 30 03:05 PM	T7-07d10h	Start of Sequence S14	Start of Sequence which contains Titan-7
246T11:30:00	Sep 03 12:52	Sat Sep 03 04:52 AM	T7-03d21h	OTM #31 Prime	Titan-7 minus 3 day targeting maneuver
247T10:30:00	Sep 04 11:52	Sun Sep 04 03:52 AM	T7-02d22h	OTM #31 Backup	
248T11:50:34	Sep 05 13:12	Mon Sep 05 05:12 AM	T7-01d20h	Saturn Periapsis	Saturn peripse 014, r=2.9 Rs, phase = 105 deg
249T20:30:00	Sep 06 21:52	Tue Sep 06 01:52 PM	T7-11h42m	Start of the TOST Segment	
249T20:30:00	Sep 06 21:52	Tue Sep 06 01:52 PM	T7-11h42m	Turn cameras to Titan	
249T21:41:57	Sep 06 23:03	Tue Sep 06 03:03 PM	T7-10h31m	Begin long scan across titan	Examine thermal structure of Titan's stratosphere
249T23:26:57	Sep 07 00:48	Tue Sep 06 04:48 PM	T7-08h46m	Titan Atmospheric Observations	Monitoring for surface/atmospheric changes
250T03:11:57	Sep 07 04:33	Tue Sep 06 08:33 PM	T7-05h01m	Titan limb observations	Examine trace constituents in Titan's stratosphere
250T07:20:07	Sep 07 08:42	Wed Sep 07 12:42 AM	T7-00h52m	Transition to thrusters	Duratoon = 21 minutes
250T07:40:57	Sep 07 09:02	Wed Sep 07 01:02 AM	T7-00h32m	Turn High-gain Antenna to Titan	Preparation for RADAR observations
250T07:48:57	Sep 07 09:10	Wed Sep 07 01:10 AM	T7-00h24m	RADAR Altimetry	Inbound
250T07:56:57	Sep 07 09:18	Wed Sep 07 01:18 AM	T7-00h16m	RADAR SAR (Low Res)	Low Resolution Synthetic Aperature RADAR
250T08:05:27	Sep 07 09:27	Wed Sep 07 01:27 AM	T7-00h07m	RADAR SAR (High Res)	High Resolution Synthetic Aperature RADAR
250T08:11:58	Sep 07 09:33	Wed Sep 07 01:33 AM	T7-00h00m		
250T08:18:27	Sep 07 09:40	Wed Sep 07 01:40 AM	T7+00h06m	RADAR SAR (Low Res)	Low Resolution Synthetic Aperature RADAR
250T08:26:57	Sep 07 09:48	Wed Sep 07 01:48 AM	T7+00h14m	RADAR Altimetry	Outbound
250T08:50:57	Sep 07 10:12	Wed Sep 07 02:12 AM	T7+00h38m	UVIS Stellar Occultation of Alpha Pegasus	Examine stellar strength and spectra as is passes being Titan's atmosphere
250T09:35:57	Sep 07 10:57	Wed Sep 07 02:57 AM	T7+01h23m	Transition to Reaction to wheels	Duration = 24 minutes
250T09:59:57	Sep 07 11:21	Wed Sep 07 03:21 AM	T7+01h47m	RADAR Radiometry	Outbound
250T13:31:57	Sep 07 14:53	Wed Sep 07 06:53 AM	T7+05h19m	Turn cameras to Titan	
250T13:51:57	Sep 07 15:13	Wed Sep 07 07:13 AM	T7+05h39m	Titan limb observations	Examine trace constituents of Titan's stratosphere.
250T17:11:57	Sep 07 18:33	Wed Sep 07 10:33 AM	T7+08h59m	Titan Photometry	Examine particle properties, vertical distributions
250T20:11:57	Sep 07 21:33	Wed Sep 07 01:33 PM	T7+11h59m	Begin long scan across Titan	Examine thermal structure of Titan's stratosphere
251T02:24:00	Sep 08 03:46	Wed Sep 07 07:46 PM	T7+18h12m	Turn to Earth-Line	
251T02:50:00	Sep 08 04:12	Wed Sep 07 08:12 PM	T7+18h38m	Begin first playback of T7 data	Madrid 34-meter antenna, approximatelt 1/3 of data returned
252T11:09:00	Sep 09 12:31	Fri Sep 09 04:31 AM	T7+02d03h	Begin second playback of T7 data	Goldstone 70-meter antenna, the remaining 2/3 of the Titan data returned
257T16:49:43	Sep 14 18:11	Wed Sep 14 10:11 AM	T7+07d09h	Saturn Apoapsis	Saturn

014TI (T7) Playback Timeline

Created Aug. 29, 2005

Event or Observation	Observation Type (APGEN)	Observation Record Start Time (yyyy- dddThh:mm:ss) (SCET)	Record Start Time Reference Epoch (ddThh:m)	Start Playback (Ground UTC)		Start Playback (Pacific Time)	
				Best Estimate	Latest Possible	Best Estimate	Latest Possible
MAG_014OT_SURVEY002_PRIME	MAG_1976	2005-249T21:30:00	-00T10:41	08-Sep Thu 04:34 AM	Thu 04:36 AM	07-Sep Wed 09:34 PM	Wed 09:36 PM
MIMI_014CO_SURVEY005_MAPS	MIMI_8000	2005-249T21:30:00	-00T10:41	08-Sep Thu 04:34 AM	Thu 04:36 AM	07-Sep Wed 09:34 PM	Wed 09:36 PM
RPWS_014SA_OUTSURVEY009_PRIME	RPWS_30464	2005-249T21:30:00	-00T10:41	08-Sep Thu 04:34 AM	Thu 04:36 AM	07-Sep Wed 09:34 PM	Wed 09:36 PM
CIRS_014TI_FIRNADCMP004_ISS	CIRS_4000	2005-249T21:41:57	-00T10:30	08-Sep Thu 04:38 AM	Thu 04:39 AM	07-Sep Wed 09:38 PM	Wed 09:39 PM
ISS_014TI_MONITORNA001_PRIME	ISS_Phot_1_by_1	2005-249T21:41:57	-00T10:30	08-Sep Thu 04:38 AM	Thu 04:39 AM	07-Sep Wed 09:38 PM	Wed 09:39 PM
INMS_014TI_T7INBD002_RIDER	INMS_1498	2005-249T21:51:31	-00T10:20	08-Sep Thu 04:54 AM	Thu 04:57 AM	07-Sep Wed 09:54 PM	Wed 09:57 PM
VIMS_014TI_NAMONITO006_ISS	VIMS_18432	2005-249T22:11:57	-00T10:00	08-Sep Thu 05:24 AM	Thu 05:31 AM	07-Sep Wed 10:24 PM	Wed 10:31 PM
1WAY_TO_2WAY_M34HEFNON251	P/B_PAUSE	5 min. Prevents Gap	n/a	08-Sep Thu 07:04 AM	Thu 07:04 AM	08-Sep Thu 12:04 AM	Thu 12:04 AM
CIRS_014TI_FIRNADMAP004_VIMS	CIRS_4000	2005-249T23:26:57	-00T08:45	08-Sep Thu 07:06 AM	Thu 07:29 AM	08-Sep Thu 12:06 AM	Thu 12:29 AM
ISS_014TI_MEDRES001_VIMS	ISS_Phot_1_by_1	2005-249T23:26:57	-00T08:45	08-Sep Thu 07:06 AM	Thu 07:29 AM	08-Sep Thu 12:06 AM	Thu 12:29 AM
VIMS_014TI_MEDRES001_PRIME	VIMS_18432	2005-249T23:26:57	-00T08:45	08-Sep Thu 07:06 AM	Thu 07:29 AM	08-Sep Thu 12:06 AM	Thu 12:29 AM
CDA_014RI_1800RINGM007_RIDER	CDA_524	2005-250T00:22:05	-00T07:49	08-Sep Thu 07:59 AM	Thu 08:52 AM	08-Sep Thu 12:59 AM	Thu 01:52 AM
CDA_014DR_1900DUST080_RIDER	CDA_524	2005-250T02:23:05	-00T05:48	08-Sep Thu 09:54 AM	Thu 11:53 AM	08-Sep Thu 02:54 AM	Thu 04:53 AM
CIRS_014TI_FIRNADMAP005_ISS	CIRS_4000	2005-250T03:11:57	-00T05:00	08-Sep Thu 10:40 AM	Thu 01:05 PM	08-Sep Thu 03:40 AM	Thu 06:05 AM
ISS_014TI_COMBINED001_PRIME	ISS_Phot_1_by_1	2005-250T03:11:57	-00T05:00	08-Sep Thu 10:40 AM	Thu 01:05 PM	08-Sep Thu 03:40 AM	Thu 06:05 AM
VIMS_014TI_HIGHRESN001_ISS	VIMS_18432	2005-250T03:11:57	-00T05:00	08-Sep Thu 10:40 AM	Thu 01:05 PM	08-Sep Thu 03:40 AM	Thu 06:05 AM
MAG_014TI_MAGTITAN001_PRIME	MAG_1976	2005-250T04:33:09	-00T03:38	08-Sep Thu 12:37 PM	Fri 01:08 PM	08-Sep Thu 05:37 AM	Fri 06:08 AM
CAPS_014TI_T7INBND001_CIRS	CAPS_16000	2005-250T06:11:57	-00T02:00	09-Sep Fri 01:00 PM	Fri 01:56 PM	09-Sep Fri 06:00 AM	Fri 06:56 AM
MIMI_014TI_T7INBND001_CIRS	MIMI_8000	2005-250T06:11:57	-00T02:00	09-Sep Fri 01:00 PM	Fri 01:56 PM	09-Sep Fri 06:00 AM	Fri 06:56 AM
RPWS_014TI_TIINTRMED001_PRIME	RPWS_30464	2005-250T06:11:57	-00T02:00	09-Sep Fri 01:00 PM	Fri 01:56 PM	09-Sep Fri 06:00 AM	Fri 06:56 AM
INMS_014TI_T7CLOSE001_RIDER	INMS_1498	2005-250T07:11:57	-00T01:00	09-Sep Fri 01:30 PM	Fri 02:33 PM	09-Sep Fri 06:30 AM	Fri 07:33 AM
MIMI_014TI_T7CLOSE001_CIRS	MIMI_8000	2005-250T07:11:57	-00T01:00	09-Sep Fri 01:30 PM	Fri 02:33 PM	09-Sep Fri 06:30 AM	Fri 07:33 AM
RADAR_014OT_TI7WARMUP001_RIDER	RADAR_364800	2005-250T07:19:57	-00T00:52	09-Sep Fri 01:34 PM	Fri 02:38 PM	09-Sep Fri 06:34 AM	Fri 07:38 AM
VIMS_014TI_RCSRWA001_ENGR	VIMS_18432	2005-250T07:20:57	-00T00:51	09-Sep Fri 01:34 PM	Fri 02:38 PM	09-Sep Fri 06:34 AM	Fri 07:38 AM
CAPS_014TI_T7CLOSE001_CIRS	CAPS_16000	2005-250T07:21:57	-00T00:50	09-Sep Fri 01:35 PM	Fri 02:39 PM	09-Sep Fri 06:35 AM	Fri 07:39 AM
RADAR_014TI_TI7P1ALT001_PRIME	RADAR_364800	2005-250T07:48:57	-00T00:23	09-Sep Fri 01:43 PM	Fri 02:49 PM	09-Sep Fri 06:43 AM	Fri 07:49 AM
RADAR_014TI_TI7P2LRES001_PRIME	RADAR_364800	2005-250T07:56:57	-00T00:15	09-Sep Fri 01:48 PM	Fri 05:18 PM	09-Sep Fri 06:48 AM	Fri 10:18 AM
RADAR_014TI_TI7P3HRES001_PRIME	RADAR_364800	2005-250T08:05:27	-00T00:06	09-Sep Fri 02:06 PM	Fri 05:34 PM	09-Sep Fri 07:06 AM	Fri 10:34 AM
1WAY_TO_2WAY_G70METNON252	P/B_PAUSE	5 min. Prevents Gap	n/a	09-Sep Fri 03:24 PM	Fri 03:24 PM	09-Sep Fri 08:24 AM	Fri 08:24 AM
RADAR_014TI_TI7P4LRES001_PRIME	RADAR_364800	2005-250T08:18:27	00T00:06	09-Sep Fri 05:15 PM	Fri 06:17 PM	09-Sep Fri 10:15 AM	Fri 11:17 AM
RADAR_014TI_TI7P5ALT001_PRIME	RADAR_364800	2005-250T08:26:57	00T00:14	09-Sep Fri 05:31 PM	Fri 06:33 PM	09-Sep Fri 10:31 AM	Fri 11:33 AM
CIRS_014TI_FIRL MBAER004_UVIS	CIRS_4000	2005-250T08:50:57	00T00:38	09-Sep Fri 05:43 PM	Fri 06:45 PM	09-Sep Fri 10:43 AM	Fri 11:45 AM
ISS_014ST_ALPPEG002_UVIS	ISS_Phot_1_by_1	2005-250T08:50:57	00T00:38	09-Sep Fri 05:43 PM	Fri 06:45 PM	09-Sep Fri 10:43 AM	Fri 11:45 AM
UVIS_014ST_ALPPEG002_PRIME	UVIS_32096	2005-250T08:50:57	00T00:38	09-Sep Fri 05:43 PM	Fri 06:45 PM	09-Sep Fri 10:43 AM	Fri 11:45 AM
CAPS_014TI_T7OUTBND001_CIRS	CAPS_16000	2005-250T09:01:57	00T00:49	09-Sep Fri 05:49 PM	Fri 06:52 PM	09-Sep Fri 10:49 AM	Fri 11:52 AM
INMS_014TI_T7OUTBD001_RADAR	INMS_1498	2005-250T09:11:57	00T00:59	09-Sep Fri 05:53 PM	Fri 06:57 PM	09-Sep Fri 10:53 AM	Fri 11:57 AM
MIMI_014TI_T7OUTBND001_CIRS	MIMI_8000	2005-250T09:11:57	00T00:59	09-Sep Fri 05:53 PM	Fri 06:57 PM	09-Sep Fri 10:53 AM	Fri 11:57 AM
RADAR_014TI_TI7P6RAD001_PRIME	RADAR_364800	2005-250T09:59:57	00T01:47	09-Sep Fri 06:06 PM	Fri 07:12 PM	09-Sep Fri 11:06 AM	Fri 12:12 PM
CAPS_014SA_SURVEY009_RIDER	CAPS_16000	2005-250T10:11:57	00T01:59	09-Sep Fri 06:08 PM	Fri 07:14 PM	09-Sep Fri 11:08 AM	Fri 12:14 PM
MIMI_014CO_SURVEY006_MAPS	MIMI_8000	2005-250T10:11:57	00T01:59	09-Sep Fri 06:08 PM	Fri 07:14 PM	09-Sep Fri 11:08 AM	Fri 12:14 PM
RPWS_014SA_OUTSURVEY003_PRIME	RPWS_30464	2005-250T10:22:36	00T02:10	09-Sep Fri 06:09 PM	Fri 07:15 PM	09-Sep Fri 11:09 AM	Fri 12:15 PM
MAG_014OT_SURVEY006_PRIME	MAG_1976	2005-250T11:50:45	00T03:38	09-Sep Fri 06:17 PM	Fri 07:23 PM	09-Sep Fri 11:17 AM	Fri 12:23 PM
CIRS_014IC_DSCALSHRT228_RIDER	CIRS_4000	2005-250T13:31:57	00T05:19	09-Sep Fri 06:25 PM	Fri 07:32 PM	09-Sep Fri 11:25 AM	Fri 12:32 PM
CIRS_014TI_MIRLMBINT002_PRIME	CIRS_4000	2005-250T13:51:57	00T05:39	09-Sep Fri 06:26 PM	Fri 07:33 PM	09-Sep Fri 11:26 AM	Fri 12:33 PM
CIRS_014TI_MIRLMBMAP002_SI	ISS_SUPPORT_IMAGING	2005-250T13:51:57	00T05:39	09-Sep Fri 06:26 PM	Fri 07:33 PM	09-Sep Fri 11:26 AM	Fri 12:33 PM
ISS_014TI_MIRLMBINT002_CIRS	ISS_Phot_1_by_1	2005-250T13:51:57	00T05:39	09-Sep Fri 06:26 PM	Fri 07:33 PM	09-Sep Fri 11:26 AM	Fri 12:33 PM
VIMS_014TI_NADIRMAP001_CIRS	VIMS_18432	2005-250T13:51:57	00T05:39	09-Sep Fri 06:26 PM	Fri 07:33 PM	09-Sep Fri 11:26 AM	Fri 12:33 PM
CIRS_014TI_FIRNADCMP002_PRIME	CIRS_4000	2005-250T17:11:57	00T08:59	09-Sep Fri 06:44 PM	Fri 08:00 PM	09-Sep Fri 11:44 AM	Fri 01:00 PM
CIRS_014TI_FIRNADCMP002_SI	ISS_SUPPORT_IMAGING	2005-250T17:11:57	00T08:59	09-Sep Fri 06:44 PM	Fri 08:00 PM	09-Sep Fri 11:44 AM	Fri 01:00 PM
ISS_014TI_FIRNADCMP002_CIRS	ISS_Phot_1_by_1	2005-250T17:11:57	00T08:59	09-Sep Fri 06:44 PM	Fri 08:00 PM	09-Sep Fri 11:44 AM	Fri 01:00 PM
CIRS_014TI_MIDIRTMAP005_PRIME	CIRS_4000	2005-250T20:11:57	00T11:59	09-Sep Fri 07:02 PM	Fri 08:28 PM	09-Sep Fri 12:02 PM	Fri 01:28 PM
CIRS_014TI_MIDIRTMAP005_SI	ISS_SUPPORT_IMAGING	2005-250T20:11:57	00T11:59	09-Sep Fri 07:02 PM	Fri 08:28 PM	09-Sep Fri 12:02 PM	Fri 01:28 PM
INMS_014SA_SURVEY005_RIDER	INMS_1498	2005-250T20:11:57	00T11:59	09-Sep Fri 07:02 PM	Fri 08:28 PM	09-Sep Fri 12:02 PM	Fri 01:28 PM
ISS_014TI_MIDIRTMAP005_CIRS	ISS_Phot_1_by_1	2005-250T20:11:57	00T11:59	09-Sep Fri 07:02 PM	Fri 08:28 PM	09-Sep Fri 12:02 PM	Fri 01:28 PM
CDA_014HY_2400HYORX005_RIDER	CDA_524	2005-250T21:50:10	00T13:38	09-Sep Fri 07:08 PM	Fri 08:38 PM	09-Sep Fri 12:08 PM	Fri 01:38 PM
CDA_014DR_2500DUST081_RIDER	CDA_524	2005-250T23:51:09	00T15:39	09-Sep Fri 07:15 PM	Fri 08:50 PM	09-Sep Fri 12:15 PM	Fri 01:50 PM
RSS_014HY_MASSORT001_RSS	RSS_Activity	2005-251T00:43:00	00T16:31	09-Sep Fri 07:19 PM	Fri 08:55 PM	09-Sep Fri 12:19 PM	Fri 01:55 PM
UVIS_014SW_IPHSURVEY016_RIDER	UVIS_5032	2005-251T02:50:00	00T18:38	09-Sep Fri 02:51 PM	Fri 02:51 PM	09-Sep Fri 07:51 AM	Fri 07:51 AM
CIRS_014IC_DSCAL1237_RIDER	CIRS_4000	2005-251T03:50:00	00T19:38	09-Sep Fri 02:53 PM	Fri 02:53 PM	09-Sep Fri 07:53 AM	Fri 07:53 AM